

CLAIMS

What is claimed is:

1. A device for the stepwise transport of liquid, particularly of sample liquid to be analyzed, through several reaction chambers located in series in terms of flow while utilizing capillary forces, comprising
 - a channel (14) through which liquid is transportable on the basis of capillary forces, and
 - at least two closed vent holes (38,40,42) which are in fluid communication with the channel (14) at connection sites (22,24,26) spaced from each other along the channel (14),
 - the connection sites (22,24,26) dividing the channel (14) into several channel sections (44,46,48),
 - the fluid connections between a respective channel section (44,46,48) and the vent holes (38,40,42) allocated thereto being able to be opened separately, and
 - at least one chamber (50,52,54) being arranged in the channel sections (44,46,48) upstream of each connection site (22,24,26) in flow direction.
2. The device according to claim 1, characterized in that a reagent substance is arranged in at least one chamber (50,52,54).
3. The device according to claim 2, characterized in that the reagent substance is immobilized and adapted to be mobilized when contacting the liquid.

4. The device according to one of claims 1 to 3, characterized in that vent channels (30,32,34) ending in the vent holes (38,40,42) branch off from the channel (14) at the connection sites (22,24,26).
5. The device according to claim 4, characterized in that liquid is transportable through the vent channel (30,32,34) up to the vent hole (38,40,42) by capillary effect when the vent hole (38,40,42) is open.
6. The device according to one of claims 1 to 5, characterized in that a liquid flowing through the channel section (44,46,48) upstream of the vent hole (38,40,42) when viewed in flow direction after the vent hole (38,40,42) has been opened reaches up to the vent hole (38,40,42).
7. The device according to one of claims 1 to 6, characterized in that each vent hole (38,40,42) is closed by a cover element (60,74,76,78) that is adapted to be pulled off, punctured, melted open and/or soluble or air-permeable by initiating a reaction.
8. The device according to claim 7, characterized in that all the vent holes (38,40,42) are covered by a common cover element (60,74,76,78), the cover element (60,74,76,78) being adapted to be selectively pulled off, punctured, melted open and/or soluble or air-permeable by initiating a reaction.

9. The device according to claim 7 or 8, characterized in that one or more heating elements thermally coupled with the cover element (60,74,76,78) are provided for melting open the cover element (60,74,76,78).
10. The device according to one of claims 1 to 9, characterized in that several channels (14) are provided the first, second and further vent holes (38,40,42) of which, which succeed each other in flow direction, are respectively adapted to be uncovered in common in groups.
11. The device according to one of claims 1 to 10, characterized in that the vent holes (38,40,42) are capillary holes.